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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/813,435	03/31/2004	Dennis Postupack	01638.0010.NPUS02	3804
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EXAMINER				
LAZORCIC, JASON L				
ART UNIT		PAPER NUMBER		
1791				
MAIL DATE		DELIVERY MODE		
10/27/2008		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/813,435

Applicant(s)

POSTUPACK ET AL.

Examiner

JASON L. LAZORCIK

Art Unit

1791

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 September 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 6-16, 46, 49, 55-59, 61, 64-73, and 78-88 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 6-16, 46, 49, 55-59, 61, 64-73 and 78-88 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsman's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Preliminary Matters

On page 7 of Applicants reply dated September 12, 2008, Applicant asserts that the rejection of claims under 35 U.S.C. §102 with respect to claims 16 and 69 over the GB '164 (Great Britain 1,010,164) in the Office Action dated March 28, 2008 (see particularly page 6) was issued in error. Upon review of the noted Official Action, the Examiner is in full agreement with Applicants position. The noted rejection is hereby withdrawn as an inadvertent clerical error.

As indicated on page 3 of the same Official Action, the identified claims 6 and 69 were rejected under 35 U.S.C. §103(a) over the same GB '164 reference. Applicant is advised that withdrawal of the rejection of claims 6 and 69 under 35 U.S.C. §102 neither impacts nor detracts from the validity of the rejection of claims under 35 U.S.C. §103(a) over the GB'167 reference.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 6-8, 10-16, 46, 49, 55-59, 61, 64- 66, 68-73, and 78-88 are rejected under 35 U.S.C. 103(a) as being unpatentable over British Patent (GB 1,010,164) assigned to PITTSBURGH PLATE GLASS CO and hereafter referred to as GB'164.

Regarding the identified claims, the GB'164 reference teaches (Example IV-Samples 60-77, Page 12, lines 16-44) a method wherein a "polished" soda-lime silica glass plate is preheated to 1050°C (565°C) for 10 minutes, immersed in a molten salt bath of potassium nitrate for 15-60 seconds at 1050°F, removed from the bath and maintained at 950°F (510°C) for 15 minutes.

With respect to the substrate immersion time, Applicant acknowledges that *typical* chemical strengthening operations utilize an immersion or dip time of 30 minutes to 4 hours (see pg 18, ¶(1047)). As noted by Applicant in the reply dated September 12, 2008 (see quotation bridging pages 8-9), the GB'167 reference teaches treatment times "substantially less than 5 minutes" (pg 3, lines 91-129). While the reference sets forth preferred embodiments having dipping times of 15 seconds, said reference places neither explicit nor implicit limitations upon the shortest dipping times applicable for the process.

Although the prior art explicitly sets forth embodiments wherein a glass plate is immersed into a molten salt bath for times "substantially less than 5 minutes" and as short as 15 seconds, the reference is silent regarding the particular claimed immersion periods of "10 seconds or less" and "about 0.5 seconds to about 30 seconds" as required by dependent claims 6, 49, 64, and 78.

Although the prior art does not explicitly set forth Applicants particularly claimed immersion period of less than 10 seconds, it is the Examiners position that said immersion period would have represented a merely obvious extension over the process explicitly set forth in the prior art.

Specifically, both the prior art process and the claimed invention make use of immersion periods which one of ordinary skill would recognize as significantly shorter than the "typical" processing parameters (e.g. about 3 to 60 seconds for the prior art

and the claimed invention versus 1,800 to 14,400 seconds for Applicants admitted "typical process"). In the context of these "typical" immersion conditions, the claimed and prior art immersion times would be viewed as patentably indistinguishable from each other.

With respect to the predictability of the process, one of ordinary skill in the art would recognize that the degree of temper achieved in a chemically strengthened glass sheet is a direct function of the immersion time or contact time with the molten salt bath (e.g. solid state diffusion). All other variables held constant, a reduction in the immersion time would predictably result in a decrease in the ion diffused layer of the glass substrate and thereby result in a decreased temper effect in the chemically tempered glass sheet. It is the Examiners position that the relationship between immersion time and glass temper is both predictable and established in the art and that one of ordinary skill in the art would have been motivated to try shorter immersion times that those explicitly disclosed in GB '164 as a means to enhance the rate of tempered sheet production.

It follows, absent any compelling evidence of unexpected results from the claimed process conditions, that the claimed process conditions of " 10 seconds or less" and "about 0.5 seconds to about 30 seconds" would have been derived through no more than routine experimentation and optimization of the prior art disclosed process. Regarding unexpected results from the claimed operating conditions, Applicant has, to

date, failed to provide any substantive evidence to suggest that processing a glass sheet for a dip time of 10 seconds or less would yield anything other than a predictable extension over the same glass sheet for 15 seconds. Similarly, Applicant has failed to provide a convincing showing that a dipping time of 10 seconds or less would not reasonably be encompassed by the broader noted processing time of "substantially less than 5 minutes".

In short, Applicants claimed process time of 10 seconds or less is construed to;

- 1) be wholly encompassed by the broader disclosed dipping time of "substantially less than 5 minutes",
- 2) to yield a predictable extension over the preferred embodiment of dipping the glass sheet for 15 seconds, and
- 3) would have reasonably been derived through no more than routine experimentation over the prior art disclosed process for one of ordinary skill in the art seeking to increase the production rate of tempered glass sheets.

While the instant reference teaches a "typical" composition of soda lime silicate glass which is suitable for the inventive method (page 2, lines 31-42), it is silent regarding the strain point and annealing point associated with the composition. Regarding Claim 56, the instant reference clearly indicates that acceptable processing temperatures may range "as high as 1200°F to 1400°F" (Page 3, Lines 51-58)

As evidenced in the disclosure by Grubb (US 3,498,773), a glass material having a composition within the GB'164 experimental range has an annealing point of 1033°F and a strain point of 986°F (Column 9, Lines 66-75). Therefore the GB'164 reference is understood to inherently teach dipping the glass article in a salt bath "at least above the annealing point temperature" and to maintain said article at a temperature "between the strain point temperature and about 150°C below the strain point temperature".

With particular respect to Applicants newly added **claims 73 and 78 to 88**, GB'164 teaches that "it is generally preferable to preheat the surfaces of the glass sheets to be treated to a temperature approximating that at which the molten potassium salt bath is maintained prior to contacting the glass sheets with the treating bath. However, it will be realized that the glass can be heated to a higher temperature than that at which the potassium salt is maintained, and **the converse is also true.**" (Page 2, lines 97-105)

Regarding **Claims 7, 8, 10 through 12, and 65 to 66** the reference teaches "the potassium nitrate salt can be employed either alone or in conjunction with other potassium salts, e.g., potassium chloride, to constitute the potassium salt treating bath...An exemplary mixed potassium salt treating bath within the purview of the present invention is one having about 70 mole percent potassium nitrate and 30 mole percent potassium chloride. However, the advantages attendant to the method of the present invention can be secured using a potassium nitrate potassium chloride treating bath having a potassium nitrate mole percent ranging from 50 percent to 100 percent. (page 4, lines 89-116)

Regarding **Claims 15 and 68**, the GB'168 reference teaches use of a polished glass substrate however it is silent regarding the nature of the polishing process or that it should specifically be performed by "flame polishing". Flame polishing is a common technique used by practitioners in the Art as a method of attaining a polishing glass performs. Absent any unexpected results to the contrary, it would have been obvious to one of ordinary skill in the art at the time of the invention to utilize "flame polishing" to produce the disclosed "polished" glass substrate.

With respect to **Claims 16 and 69**, the GB'168 reference teaches that after treating of the glass article, a thermoplastic layer or "scuff resistant coating" may be applied to the surface of the glass article (page 5, lines 102-111). Specifically regarding the claimed cleaning step, it would have been obvious to subject the salt treated glass article to subsequent processing steps as routinely practiced in the art (e.g. cleaning residual salt from the treated article and/or applying surface treatments or coatings to said article).

Claims 9 and 67 are rejected under 35 U.S.C. 103(a) as being unpatentable over British Patent (GB 1,010,164) as applied under 35 U.S.C. 102(b) above in the rejections of Claim 1 and 61, respectively, and in further view of Duke (US 3,573,072).

GB'164 teaches that the molten salt bath may comprise a mix of potassium salts, however said reference is silent regarding the specific use of potassium sulfate. The Duke reference teaches that "While the nitrate bath may be used at temperatures up to about 600' C. or so, the salt tends to decompose at such high temperatures and severely attack the article surface as well as containers and other equipment. For higher temperature work then, it is convenient to employ a molten salt bath composed of potassium chloride and potassium sulfate and based on a eutectic mixture of these salts. This is a mixture of about 52% KCl and 48% K₂SO₄ which melts at about 690' C." With the Duke reference in hand, one of ordinary skill in the art at the time of the invention seeking to perform the GB'164 process at temperatures above about 600oC would obviously made use of a salt bath comprising potassium sulfate as taught by Duke. The use of potassium sulfate would have been an obvious approach due to the greater stability and lower chemical reactivity of this composition at elevated temperatures.

Response to Arguments

Applicant's arguments filed September 12, 2008 have been fully considered but they are not persuasive.

Specifically, Applicant alleges that the prior art in no way discloses or suggests the dipping duration of "10 seconds or less". With respect to this matter, Applicant acknowledges that the GB'164 reference teaches treatment times of "substantially less than 5 minutes" but states that "the lowest dipping duration disclosed by the prior art is

15 seconds". Applicant concludes that since the lower limit disclosed in the prior art preferred embodiment is 50% larger than the maximum of the claimed range, the prior art does not disclose or suggest the range of 10 seconds or less and thus cannot render it obvious.

The Examiner disagrees.

As noted more fully in the art rejection above, Applicants claimed process time of 10 seconds or less is construed to;

1. be wholly encompassed by the broader disclosed dipping time of "substantially less than 5 minutes",
2. to yield a predictable extension over the preferred embodiment of dipping the glass sheet for 15 seconds, and
3. would have reasonably been derived through no more than routine experimentation over the prior art disclosed process for one of ordinary skill in the art seeking to increase the production rate of tempered glass sheets.

In view of the foregoing summary and the detailed discussion of the GB'164 reference above, Applicants arguments alleging the unobvious nature of dipping times in the range of 10 seconds or less are held to be unpersuasive.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JASON L. LAZORCIK whose telephone number is (571)272-2217. The examiner can normally be reached on Monday through Friday 8:30 am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on (571) 272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JLL

/Eric Hug/
Primary Examiner, Art Unit 1791